

SERIAL NO. 10/005,312

Docket No. 1594.1025

IN THE CLAIMS:

Please **AMEND** claims 49 and 51, as follows:

1-15. (CANCELED)

16. (PREVIOUSLY PRESENTED) A sensor to sense a liquid content in a gas, comprising:
a board;
a first electrode disposed on said board; and
a second electrode disposed on said board opposite said first electrode to form a gap therebetween,
wherein:
the gas is received into the gap such that the liquid forms a conductive path between said first and second electrodes as to vary a resistance across the gap, and
a bottom portion of the gap exposed to the gas comprises a non-conductive material.

17. (PREVIOUSLY PRESENTED) The sensor of claim 16, further comprising a non-conductive layer of the non-conductive material to form the bottom of the gap and which extends between sidewalls of the first and second electrodes.

18. (ORIGINAL) The sensor of claim 17, wherein the non-conductive layer comprises one of a ceramic or polymer layer.

19. (ORIGINAL) The sensor of claim 17, wherein said board comprises the non-conductive layer, and the liquid is deposited on said board so as to vary a resistance between said first and second electrodes.

20. (ORIGINAL) The sensor of claim 17, wherein said board comprises a printed circuit board.

21. (ORIGINAL) The sensor of claim 16, where said first and second electrodes further comprise first and second detection portions forming side walls of the gap.

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22. (ORIGINAL) The sensor of claim 21, wherein an amount of resistance between said first and second electrodes across the gap corresponds to cross sectional areas of the side walls exposed to the gas in the gap.

23. (ORIGINAL) The sensor of claim 21, wherein a distance between the first and second detection portions is constant.

24. (ORIGINAL) The sensor of claim 21, wherein an amount of resistance corresponds to an amount of the liquid in the gap, cross sectional areas of the side walls exposed to the gap, and a distance between the first and second detection portions across the gap.

25. (PREVIOUSLY PRESENTED) The sensor of claim 21, wherein one of the first and second detection portions further comprise the protective layer to prevent corrosion due to the liquid.

26. (ORIGINAL) The sensor of claim 25, wherein the protective layer comprises a layer of gold and a layer of nickel.

27. (WITHDRAWN) The sensor of claim 16, wherein:
said first electrode comprises first detection portions extending adjacent to each other,
and

said second electrode comprises second detection portions, each of the second detection portions extending adjacent to a corresponding one of the first detection portions to define a corresponding gap therebetween.

28. (WITHDRAWN) The sensor of claim 27, wherein a non-conductive layer defines bottom surfaces to the corresponding gaps.

29. (PREVIOUSLY PRESENTED) A sensor to sense a liquid content in a gas,
comprising:
a board;
a first electrode disposed on said board; and
a second electrode disposed on said board opposite said first electrode to form a gap therebetween.

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wherein:

the gas is received into the gap such that the liquid forms a conductive path between said first and second electrodes as to vary a resistance across the gap, and said board comprises vents through which portions of the gas not received within the gap pass.

30. (PREVIOUSLY PRESENTED) A humidity detection system to detect a liquid content in a gas, comprising:

- a current source to provide a current;
- a board;
- a first electrode disposed on said board and which receives the current;
- a second electrode disposed on said board opposite said first electrode to form a gap therebetween into which the gas is received; and
- a detection unit in communication with said second electrode to detect an amount of resistance across the gap,

wherein:

the amount of resistance corresponds to an amount of the liquid in the gas received in the gap, and

a bottom surface of the gap exposed to the gas comprises a non-conductive material so as to prevent an electrical pathway from being established on the board between the first and second electrodes across the gap.

31. (ORIGINAL) The humidity detection system of claim 30, wherein said current source and said detection unit comprise a humidity detector.

32. (PREVIOUSLY PRESENTED) A humidity detection system to detect a liquid content in a gas, comprising:

- a current source to provide a current;
- a board;
- a first electrode disposed on said board and which receives the current;
- a second electrode disposed on said board opposite said first electrode to form a gap therebetween into which the gas is received; and
- a detection unit in communication with said second electrode to detect an amount of resistance across the gap,

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wherein:

the amount of resistance corresponds to an amount of the liquid in the gas received in the gap, and

said current source is a separate unit from said detection unit.

33. (PREVIOUSLY PRESENTED) The humidity detection system of claim 30, wherein said board comprises the non-conductive material and forms the bottom surface of the gap.

34. (ORIGINAL) The humidity detection system of claim 33, wherein said board further comprises vents through which portions of the gas not received in the gap pass.

35. (ORIGINAL) The humidity detection system of claim 33, wherein said board comprises a printed circuit board.

36. (PREVIOUSLY PRESENTED) A humidity detection system to detect a liquid content in a gas, comprising:

a current source to provide a current;

a board;

a first electrode disposed on said board and which receives the current;

a second electrode disposed on said board opposite said first electrode to form a gap therebetween into which the gas is received;

a detection unit in communication with said second electrode to detect an amount of resistance across the gap; and

a resistor and a capacitor connected in parallel between a ground and said second electrode,

wherein the amount of resistance corresponds to an amount of the liquid in the gas received in the gap.

37. (ORIGINAL) The humidity detection system of claim 36, wherein said resistor has a resistance according to an amount of voltage of said current source.

38. (PREVIOUSLY PRESENTED) The sensor of claim 29, further comprising a non-conductive layer to form a bottom of the gap and which extends between sidewalls of the first and second electrodes.

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39. (PREVIOUSLY PRESENTED) The sensor of claim 38, wherein the non-conductive layer comprises one of a ceramic or polymer layer.

40. (PREVIOUSLY PRESENTED) The sensor of claim 38, wherein said board comprises the non-conductive layer, and the liquid is deposited on said board so as to vary a resistance between said first and second electrodes.

41. (PREVIOUSLY PRESENTED) The sensor of claim 39, wherein said board comprises a printed circuit board.

42. (PREVIOUSLY PRESENTED) The sensor of claim 29, where said first and second electrodes further comprise first and second detection portions forming side walls of the gap.

43. (PREVIOUSLY PRESENTED) The sensor of claim 42, wherein an amount of resistance between said first and second electrodes across the gap corresponds to cross sectional areas of the side walls exposed to the gas in the gap.

44. (PREVIOUSLY PRESENTED) The sensor of claim 42, wherein a distance between the first and second detection portions is constant.

45. (PREVIOUSLY PRESENTED) The sensor of claim 29, wherein a distance between the first and second detection portions is at or between 0.5 mm and 0.25mm.

46. (PREVIOUSLY PRESENTED) The sensor of claim 29, wherein a distance between the first and second detection portions is substantially 0.15 mm.

47. (PREVIOUSLY PRESENTED) The sensor of claim 29, wherein said first and second electrodes further comprise first and second detection portions forming side walls of the gap, and one of the first and second detection portions further comprise a protective layer to prevent corrosion due to the liquid.

48. (PREVIOUSLY PRESENTED) The sensor of claim 47, wherein the protective layer comprises a layer of gold and a layer of nickel.

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49. (CURRENTLY AMENDED) The sensor of claim 16, wherein a distance between the first and second detection portions is at or between 0.5 mm and 0.25mm.

50. (PREVIOUSLY PRESENTED) The sensor of claim 49, wherein a distance between the first and second detection portions is substantially 0.15 mm.

51. (CURRENTLY AMENDED) The sensor of claim 16, wherein said board comprises vents through portions of the gas pass.

52. (PREVIOUSLY PRESENTED) The sensor of claim 51, wherein the portions of the pass which pass through the vents are the portions of the gas not received within the gap.

53. (PREVIOUSLY PRESENTED) A humidity detection system to detect a liquid content in a gas, comprising:

- a current source to provide a current;

- a board having a vent;

- a first electrode disposed on said board and which receives the current;

- a second electrode disposed on said board opposite said first electrode to form a gap therebetween into which the gas is received; and

- a detection unit in communication with said second electrode to detect an amount of resistance across the gap,

- wherein:

- the amount of resistance corresponds to an amount of the liquid in the gas received in the gap, and

- portions of the gas pass through the vent.